

IN THE CLAIMS:

1. A circuit arrangement comprising:
an input terminal to which an input current is applied;
an output terminal to which an output voltage is applied;
5 a transimpedance amplifier circuit connected to said output terminal; and
an overdrive limiter circuit serially connected to said transimpedance amplifier
circuit which receives said input current from said input terminal, said overdrive
limiter circuit having at least one switch for providing an open circuit arrangement
between a current source and said transimpedance amplifier circuit when an overdrive
10 condition occurs.

2. The circuit arrangement according to Claim 1, further comprising a
resistor serially connected to said transimpedance amplifier circuit and said overdrive
limiter circuit at an intermediate point.

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3. The circuit arrangement according to Claim 1, wherein said overdrive
limiter circuit comprises:

first and second current sources having a respective first terminal connected to
ground; and

20 a Schottky bridge having the at least one switch and further having a first
terminal connected to a second terminal of the first current source, said Schottky
bridge having a second terminal connected to a second terminal of the second current
source, wherein a bias current is applied to said Schottky bridge by said first and
second current sources, and wherein said bias current sets the maximum current the
25 transimpedance amplifier circuit can provide to the current source and the maximum

output voltage the transimpedance amplifier circuit can output via said output terminal.

4. The circuit arrangement according to Claim 3, wherein said overdrive
5 limiter circuit further comprises a diode having a first terminal connected to ground and a second terminal connected to said input terminal for supplying current to the current source when said overdrive condition occurs.

5. The circuit arrangement according to Claim 4, wherein said diode
10 comprises one of a junction field-effect transistor and a NPN transistor.

6. The circuit arrangement according to Claim 3, wherein the at least one switch of said Schottky bridge includes four diodes, wherein a first pair of diodes is serially connected and parallel to a second pair of serially connected diodes, wherein
15 the cathodes of a first of the first pair of diodes and a second of the second pair of diodes are commonly connected to the second terminal of the first current source, and wherein the anodes of a second of the first pair of diodes and a second of the second pair of diodes are commonly connected to the second terminal of the second current source.

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7. The circuit arrangement according to Claim 1, wherein said transimpedance amplifier circuit comprises:

an amplifier having a first amplifier input terminal connected to said overdrive limiter circuit via an intermediate resistor, a second amplifier input terminal connected

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to ground, and an amplifier output terminal connected to said output terminal; and

an RC feedback network comprising:

a feedback resistor having a resistor input terminal connected to said first amplifier input terminal and having a resistor output terminal connected to said

5 amplifier output terminal; and

a capacitor connected in parallel to said feedback resistor.

8. The circuit arrangement according to Claim 7, wherein the intermediate resistor and the feedback resistor have resistances of approximately 100
10 and 10,000 ohms, respectively, and wherein the capacitor has a capacitance of approximately one picofarad.

9. The circuit arrangement according to Claim 1, further comprising two serially arranged load resistors connected to said output terminal and both having
15 resistances of approximately 75 ohms.

10. An overdrive limiter circuit arrangement comprising:
an amplifier circuit having at least one amplifier; and
an overdrive sensing circuit comprising a switching network serially connected
20 to said amplifier circuit for sensing an overdrive condition and providing an open circuit arrangement between a current source and said amplifier circuit for limiting the current provided to said at least one amplifier during said overdrive condition.

11. The overdrive limiter circuit according to Claim 10, further comprising a resistor serially connected to said amplifier circuit and said overdrive sensing circuit at an intermediate point.

5 12. The overdrive limiter circuit according to Claim 10, wherein said switching network is a Schottky bridge, wherein said overdrive sensing circuit further comprises first and second current sources for applying a bias current to said Schottky bridge, and wherein said bias current sets the maximum current the at least one amplifier can provide to the current source and the maximum output voltage the at
10 least one amplifier can output via an output terminal.

13. The overdrive limiter circuit according to Claim 12, wherein said Schottky bridge includes a first and a second pair of diodes, wherein the first pair of diodes is serially connected and parallel to the second pair of serially connected
15 diodes, wherein the cathodes of a first of the first pair of diodes and a first of the second pair of diodes are commonly connected to a terminal of the first current source, and wherein the anodes of a second of the first pair of diodes and a second of the second pair of diodes are commonly connected to a terminal of the second current source.

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14. The overdrive limiter circuit according to Claim 10, wherein said overdrive sensing circuit further comprises a diode having a first terminal connected to ground and a second terminal connected to an input terminal of said overdrive limiter circuit, said diode supplying current to the current source when said overdrive
25 condition occurs.

15. The overdrive limiter circuit according to Claim 14, wherein said diode comprises one of a junction field-effect transistor and a NPN transistor.

5 16. The overdrive limiter circuit according to Claim 10, wherein said amplifier circuit is a transimpedance amplifier circuit.

17. The overdrive limiter circuit according to Claim 16, wherein said transimpedance amplifier circuit comprises:

10 a first amplifier input terminal connected to said overdrive sensing circuit via an intermediate resistor, a second amplifier input terminal connected to ground, and an amplifier output terminal connected to an output terminal; and

an RC feedback network comprising:

15 a feedback resistor having a resistor input terminal connected to said first amplifier input terminal and having a resistor output terminal connected to said amplifier output terminal; and

a capacitor connected in parallel to said feedback resistor.

18. The overdrive limiter circuit according to Claim 17, wherein the
20 intermediate resistor and the feedback resistor have resistances of approximately 100 and 10,000 ohms, respectively, and wherein the capacitor has a capacitance of approximately one picofarad.

19. The overdrive limiter circuit according to Claim 10, further comprising two serially arranged load resistors connected to an output terminal of said overdrive limiter circuit and both resistors having resistances of approximately 75 ohms.

5 20. A transimpedance amplifier-current limiter circuit comprising:
a current limiter circuit comprising:

a Schottky bridge having a first and a second pair of diodes, wherein the first pair of diodes are serially connected and parallel to the second pair of serially connected diodes; and

10 first and second current sources connected to the Schottky bridge,
wherein a terminal of the first current source is connected to the cathodes of a first of the first pair of diodes and a first of the second pair of diodes, and wherein a terminal of the second current source is connected to the anodes of a second of the first pair of diodes and a second of the second pair of diodes; and

15 a transimpedance amplifier circuit serially connected to said current limiter circuit, said transimpedance amplifier circuit comprising:

a amplifier having input and output terminals, said input terminal being serially connected to the Schottky bridge; and

an RC feedback network connected to the input terminal and the output
20 terminal such that said RC feedback network is connected in parallel to the amplifier;

wherein said Schottky bridge limits the current to the amplifier when an overdrive condition occurs by providing an open circuit arrangement between the amplifier and a current source.

21. The transimpedance amplifier according to Claim 20, further comprising a diode having a first terminal connected to ground and a second terminal connected to an input terminal of said Schottky bridge, said diode supplying current to the current source when said overdrive condition occurs.